

# UNITED STATES PATENT OFFICE.

MOMME ANDRÉSEN, OF BERLIN, GERMANY.

## PROCESS OF DEVELOPING PHOTOGRAPHIC PICTURES.

SPECIFICATION forming part of Letters Patent No. 475,372, dated May 24, 1892.

Application filed April 15, 1889. Serial No. 307,326. (No specimens.) Patented in Germany February 10, 1889, No. 50,265; in Belgium March 26, 1889, No. 85,553; in France March 26, 1889, No. 196,980; in England March 26, 1889, No. 5,207; in Norway March 26, 1889, No. 1,233; in Sweden March 26, 1889, No. 2,028; in Italy March 31, 1889, XXIII, 25,190, L, 27; in Spain June 4, 1889, No. 9,403, and in Austria-Hungary February 20, 1890, No. 39,968 and No. 79.

*To all whom it may concern:*

Be it known that I, MOMME ANDRÉSEN, chemist, a subject of the King of Prussia, residing at 44 Melchiorstrasse, Berlin, Prussia, German Empire, have invented certain new and useful Improvements in and Relating to the Development of Photographic Pictures, (for which Letters Patent have been obtained in Austria-Hungary, No. 39,968 and No. 79, dated February 20, 1890; in Belgium, No. 85,553, dated March 26, 1889; in France, No. 196,980, dated March 26, 1889; in Germany, No. 50,265, dated February 10, 1889; in Great Britain, No. 5,207, dated March 26, 1889; in Italy, Vol. XXIII, 25,190, Vol. L, 27, dated March 31, 1889; in Norway, No. 1,233, dated March 26, 1889; in Spain, No. 9,403, dated June 4, 1889, and in Sweden, No. 2,028, dated March 26, 1889;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the development of photographic pictures by means of diamido-naphthaline, amido-naphthol, and dioxynaphthaline, as well as their sulpho-acids.

As is well known in photography, it is the practice to treat the sensitive plates (prepared with chloride, bromide, or iodide of silver, or with two or all of these salts) after exposure with a developing solution in order to bring to view the image produced on the sensitive plate. The developing solution hitherto employed for this purpose has usually consisted of a solution of oxalate of iron, sulphate of iron, or pyrogallie acid. Now I have found by experiment that a derivative of naphthaline, or of a naphthol, or their sulpho-acids—as, for instance, diamido-naphthaline, amido-naphthol, and dioxynaphthaline, as well as their sulpho-acids—gives much better results than the well-known alkaline pyrogallol developers, and are exceptionally suitable for developing photographic pictures, whenever, in the production of such pictures, a sensitizing agent is used that will be chemically af-

ected by the developer, as is the case in the use of a silver salt or salts—for instance, the effect being to impart to the plate a blue-black tint similar to that produced when the picture is developed in a bath of oxalate of iron, with the advantage that the sensitized plate is not in the least colored. On the other hand, the developers forming the subject-matter of this invention are more durable in an aqueous alkaline solution than the pyrogallol developers hitherto used. I thus obtain the advantages possessed by known developing agents without their disadvantages.

A developing-bath prepared with my naphthol developer, in which it is intended to immerse the sensitive plate after having been exposed for the purpose of producing a visible picture, is for instantaneous photography advantageously composed of the following ingredients: five grams of the hereinbefore-described naphthol developer, fifteen grams of sulphite of soda, two hundred and fifty grams of distilled water, and five grams of carbonate of potash. The above proportions can, however, be varied, or one or the other of the ingredients can be substituted by others, providing the essential part—namely, the before-mentioned naphthol developer—is contained in the developing-bath. After having immersed the photographic plate in this bath till the picture becomes completely developed it is then fixed in the usual way.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In the art of photography, the improvement which consists in subjecting sensitized and exposed surfaces to the developing action of a solution of a derivative of naphthaline, substantially as set forth.

2. In the art of photography, the improvement which consists in subjecting sensitized and exposed surfaces to the developing action of an alkaline solution of a derivative of naphthaline, substantially as set forth.

3. In the art of photography, the improvement which consists in subjecting sensitized